

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

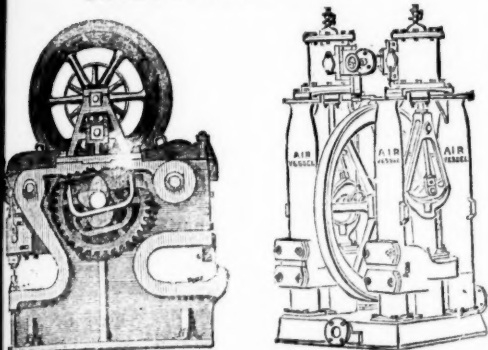
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No. 2146.—VOL. XLVI.

LONDON, SATURDAY, OCTOBER 7, 1876.

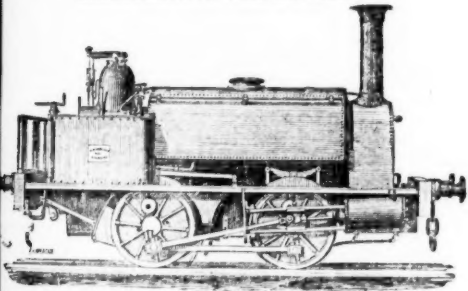
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A DIPLOMA—HIGHEST OF ALL AWARDS—given by the
Geographical Congress, Paris, 1875—M. Favre, Contractor, having
exhibited the McKean Drill alone as the MODEL BORING MACHINE
for the ST. GOTHARD TUNNEL.
SILVER MEDAL of the Highland and West of Scotland
Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecu-
tive weeks, ending February 7, was 24'90, 27'60, 24'80, 26'10,
28'30, 27'10, 28'40, 28'70 metres. Total advance of south head-
ing during January was 121'30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tun-
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sure was reduced to one-half atmosphere (7½ lbs.), showing
almost the entire motive force to be available for the blow
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The GREAT WESTERN RAILWAY has adopted these
Machines for the SEVERN TUNNEL; the LONDON AND
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NEL; and the BRITISH GOVERNMENT for several Public
Works. A considerable number of Mining Companies are now
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six times the speed of hand labour, according to the size and
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cost. The ratio of advantage over hand labour is greatest
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These Machines possess many advantages, which give them
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no weak parts—act without SHOCK upon any of the operat-
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Drill—may be worked at a higher pressure than any other
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PER MINUTE—do not require a mechanic to work them—are
the smallest, shortest, and lightest of all machines—will give
the longest feed without change of tool—work with long or
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The SAME Machine may be used for sinking, drifting, or
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IRON, AND FLEXIBLE TUBING.

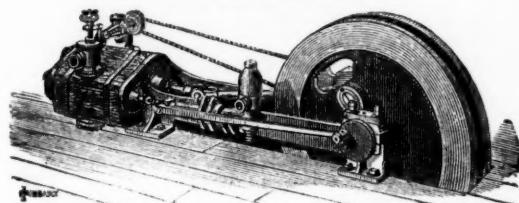
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BY DRESSING-FLOORS IS REQUIRED.
- 3.—FROM 60 TO 70 PER CENT. OF THE LABOUR IN DRESSING, AND
FROM 5 TO 10 PER CENT. OF ORE OTHERWISE LOST, IS SAVED.
- 4.—THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN
FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom
and abroad—viz.,

The Greenside Mines, Patterdale, Cumberland; London Lead Company's Mines
Darlington, Colberry, Nanthead, and Bollyhope; the Stonecroft and Greyside
Mines, Hexham, Northumberland; Wanlockhead Mines, Abington, Scotland (the
Duke of Buccleuch's); Bewick Partners, Haydon Bridge; the Old Darven, Esghar-
myn, and Ystumtuen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines,
Darlington; also Mr. Sewell, for Argenteiferous Copper Mines, Peru; the Brats-
berg Copper Mines, Norway, and Mines in Italy, Germany, United States of
America, and Australia, from all of whom certificates of the complete efficiency of
the system can be had.

WASTE HEAPS, consisting of refuse chads and skimpings of a
former washing, containing a mixture of lead, blende, and sulphur,
DRESSED TO A PROFIT.

Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton-
in-Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly
profit on our Nanthead waste heaps amounted last year to £800, besides the ma-
chinery being occupied for some months in dressing ore stuff from the mines. Of
course, if it had been wholly engaged in dressing wastes our returns would have
been greater; but it is giving us every satisfaction, and bringing the waste heaps
into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines,
Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much
pleasure in stating that a full and superior set of your Ore Dressing Machinery has
been at work at these mines for fully a month, and each day as the moving parts
become smoother, and those in charge understand the working of the machinery
better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply,
and satisfactorily than by any other method."

Mr. BAINBRIDGE, speaking of machinery supplied Colberry Mines,
says—"Your machinery saves fully one-half on old wages, and vastly more on the
wages we have now to pay. Over and above the saving in cost is the saving in ore,
which is a much short of 10 per cent."

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The
separation which they make is complete."

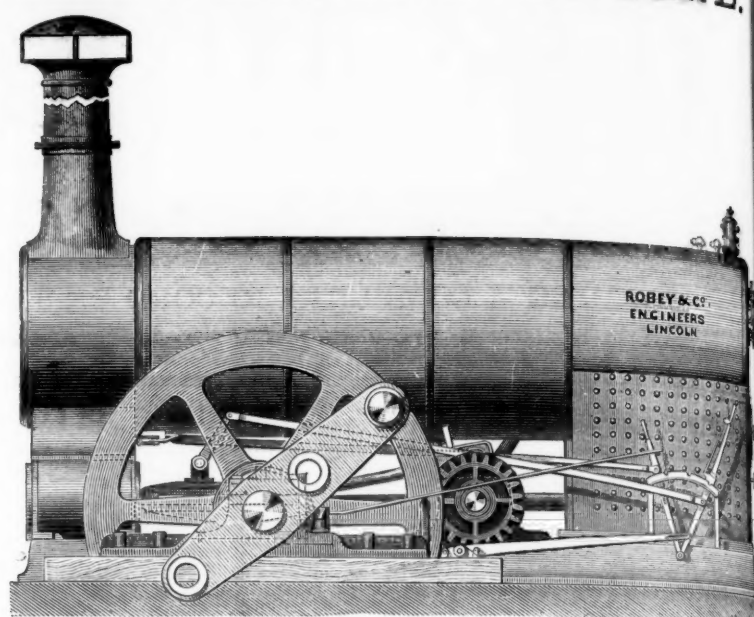
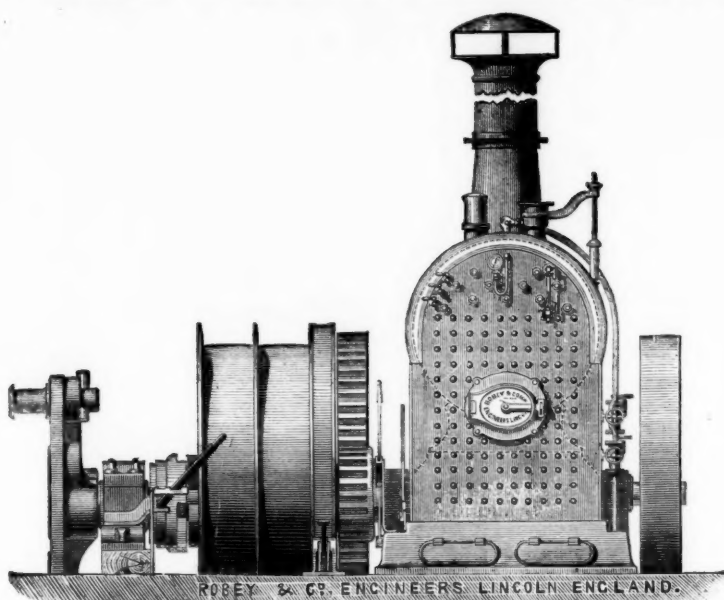
Mr. MONTAGUE BEALE says—"It will separate ore, however close
the mechanical mixture, in such a way as no other machines can do."

Mr. C. DODSWORTH says—"It is the very best for the purpose
and will do for any kind of metallic ores—the very thing so long needed for dress-
ing floors."

Drawings, specifications, and estimates will be forwarded on application to—
GEORGE GREEN, M.E., ABERYSTWTH, SOUTH WALES.

Patent No. 4136 : : : : Dated 16th December, 1873.
 Patent No. 4150 : : : : Dated 17th December, 1873.

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"5. Its having an automatic feed, giving it a steady motion, &c.

"6. Its greater steadiness and absence of jar and vibration experienced in other drills, which is very destructive to their working parts, &c.

"7. Its greater power is some FORTY PER CENT. in favour of the Ingersoll."

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Mr. TAIT, Manager, East Hetton Quarry Company's Works, Coxhoe, Durham, writing on May 12, 1876, says—"I have pleasure in testifying to the value of your Rock Drills. The two you supplied us with about six months ago are giving us entire satisfaction. The cost of drilling by machine is less than ONE-FOURTH THAT OF DRILLING BY HAND. By the use of the Drills we have been able very greatly to increase the out-put of stone without increasing the number of men employed."

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The furnace is the dis charged, and the hearth quickly re-char-
 placing in the same manner the bars still red in the middle of the
 fresh pot; and in this manner he obtains by numerous successive
 operations, according to the thickness of bars, a very good steel-
 which if it is immediately hammered and refined equals in value the
 steels of Germany with regard to its facility in forging and welding
 while in its rough condition, as it comes from the furnace. it may be

Dr. Stapff, who is the head of the Geological Department, says that at present a systematic observation of the rocks of the north side only can be given. For 2000 metres from the entrance of the tunnel, it passed through gneiss-granite, and grey gneiss, with bed

Str.—I paid a visit late'y to the gold fields of Catapiño. The journey there is a very trifling matter. By land it is 38 miles from Vaiparaiso, northwards. By sea, in a steam launch, it takes about three hours. I shall soon have an opportunity of making the trip by sea, the distance of these fields from the beach is about 10 miles. These diggings are very extensive, not only the bed of the river, but the benches, or bluffs, for a mile or two on each side of the river consist of gold gravel. By the enclosed, which please publish verbatim, you will have quite a di interested view of the quality of the e fields. Mr. A. P. Burns is the t easurer and manager of the Lan Francisco and Catapiño Gold Mining Company (Unlimited). This company was incorporated in San Francisco, May 2, 1876, exactly on the same p rinciple as the Great Comstock Vein Companies—that is, as many assessments, or as much money is asked as the operation requires, till it succeeds or bursts, and not limited in their resources, as is the case with English limited companies, who are continually obliged to re-issue fresh capital in consequence of such limitat ion, which causes delays, legal and other expenses, operation stopped, salaries and incidental expenses going on, sometimes a year or more before the new capital has been issued. The limited liability system ruins two-thirds of English companies abroad, therefore rejoice to see Americans starting their Chilian companies on the same footing as theirs at home. No time is lost in waiting for free

capital if it is found later on that more is required than originally calculated on. A simple cablegram to San Francisco fixes the whole thing—no loss of time, no lawyers, no reconstruction, no salaries going on without the corresponding labour for such. To this in a great measure I attribute, as I stated in the pamphlet on the Emma Mine, the great success of American mines when managed by Americans. I am quite convinced and agree with the Gold Hydraulic engineers that are in the service of the Catapilco Gold Mining Company of San Francisco, that the Chilean gold fields are richer and more extensive than those of California. This was my conviction before any Californian arrived here. Their extent is great. They commence near Coquimbo, and extend as far south as the Magellan Straits. The Spaniards, however, only worked as far as the Indian boundary of Aranco. It is reported by the historians of Chile that Pedro Valdivia, one of the captains of Pizarro, who was sent by him to conquer Chile, employed at one time as many as 15,000 Indians in his gold washings, and working in the most primitive manner, often collected as much as 200 lbs. (pounds) of gold per day.

As you will have seen by the circular and card sent you, we have opened an office in Valparaiso as mining engineers. Henry and John Sewell, office Calle Cochran, 102, Valparaiso, Chile. We are doing a brisk business, any amount of reporting and travelling about. The gold fever here will come day, not very remote, be greater than that of California. Since the San Francisco and Catapilco Company started here another party of Americans arrived; they have already located, and started a new camp. In my next I will give you the particulars of this turn out. I had an audience of Mr. Hanibal Pinto, a relation, and the next President of Chile, who comes into power before this reaches you, in reference to the protection of English mining companies. He informed me it was one of the principal matters that would be legislated upon at the commencement of his term. Mining industry, and especially foreign capital to develop this, would have his immediate protection and care.

HENRY SEWELL, M.E., F.R.G.S.

P.S.—I shall leave this for London, via Philadelphia, in two months time, taking with me several Chilean mining properties.

RIO TINTO MINE.

Sir,—I wish some correspondent would give us information relating to the Rio Tinto Mine. According to the last report issued the company was said to have sold about 600,000 tons of pyrites for the next three years (in advance), or an average of 200,000 tons per annum. The report said the price got was at the rate of 5½d. per unit for the sulphur, and 12s. per unit for the copper contents. But, Sir, what price does the Rio Tinto ore fetch per ton now on the market?—that is the point. I see that you quote the sales at Swansea for Sept. 26, and also the notice of sales to Oct. 3; but there is no quotation for the Rio Tinto ore. Copper is a fair good price now, and, a though the sulphur trade may be depressed, yet if the one realises anything like the price mentioned in the prospectus this mine ought to be doing wonderful well. Say that the sales of the pyrites is only 300,000 tons for the year; this ought to leave a net profit of, at least, 25s. per ton (the prospectus put it at 33s. per ton, and called it a low figure); this would give £370,000 net. Sales of precipitated copper, &c., in Spain 100,000 net.

Total £475,000 net. This would pay the debentures and preference stock, and leave 210,000l. for the shares, or nearly 20 per cent.—a brilliant prospect certainly; and how is it that the shares and debentures are so low? Can you give any information, and oblige—
P.S.—What is sulphur per unit now?
Oct. 2.

FOREIGN MINES—CAUSES OF FAILURES.

Sir,—By your kind permission I will give you one example out of many of the failures of English companies in America, where the Americans coming after have made the mines to pay handsomely, which will confirm to some extent my statements last week. The Crescent Mining Company was formed in London about four or five years ago, apparently under the most favourable auspices. An agent was appointed of the class I mentioned last week. Things from home looked rather suspicious after operations commenced, and Mr. Hill, one of the directors, went out to investigate matters, and found them anything but satisfactory. He directly appointed another agent, who, personally, was unknown to him, but was said to possess a good reputation. Mr. Hill, in order, as he thought, to make matters as safe as possible for the shareholders, appointed a young gentleman, whose relatives in England were his personal friends, financial agent in San Francisco, but it seemed to no purpose, for the company came to grief. About a year and a half ago this property was taken up by an American company, who had been recommended to it by Mr. John Jewell, son of the late Capt. Jewell, of Redruth, who has had 14 years' experience of mining on the Pacific Coast. This company naturally gave the management of all their concerns into his hands, who in a month or so got all the water drained; and, if we can give any credence to the Crescent Mill newspaper, the mine has now turned out a brilliant success. It may be said that had the English company continued they would have arrived at the same results; it was the good fortune of the present company, and not the skill or foresight of the persons concerned. This may be true, but the paper above referred to has given from time to time altogether a different version. I will not trouble you with any more such examples, your readers may readily find many of them if they look for them.—Oct. 2.

BETA.

THINGS AS THEY SHOULD BE.

Sir,—The general complaint amongst capitalists is a want of confidence, and that, perhaps, more especially amongst those who have been in the habit of speculating in mines; and there can be no doubt that this is the cause of so much shyness on the part of those gentlemen to subscribe to any new enterprise. We cannot for a moment suppose that the intrinsic value of mines has so much altered as to produce such a unanimous disposition. It is true that copper has been at a very low price for some time past, and tin also has had a serious drop; but many of us remember both at a lower figure than they are now quoted at, and it has been said over and over again that mining will never again revive. So much for the true inspiration of those prophets! As Mr. J. Y. Watson showed, in a letter published in the Journal about a month ago, in less than two years, after one of the darkest periods ever remembered, there came a season of most signal prosperity. But some say there is not at present a gleam of hope for the better. Nor was there then, yet a flood of prosperity soon rolled over the country. Could we understand the purposes of the Supreme Governor of men and things we might be able to arrive at correct conclusions; but since we cannot we had better not venture too far in prophesying future events. As in the natural world so it is in the commercial world—a variety of times and seasons; winter succeeded by spring, and spring by summer. Night is succeeded by day, clouds by sunshine, and so on; therefore, that which we have a reason to expect in the future is a repetition of the past. Looking at things from this point of view we have no reason to be cast down, a though we may be discouraged. As the sun shines behind the most portentous cloud, so prosperity may hide itself behind the gathering threats of commercial panic. It is there, but hidden, it shines, perhaps not on us. The cloud may be too dense for our dim sight to penetrate; but no sooner has it discharged its superfluous elements than, like the thunder cloud, it will disappear, and the sun of prosperity will blaze forth in all its wonted splendour.

I am glad to find that there are some gentlemen to be found who look at things in this light. In the hope of a bright and prosperous future they keep on the "even tenor of their way." Why, were it not for such men—men of pluck and promptitude—we should have every reason to expect the wheels of trade and commerce to come to a dead standstill. Thank Heaven for them, and may they live long to bless the world. I observe in the Journal of last Saturday that Mr. J. Y. Watson has succeeded in floating the Cementina Lead, in an incredible short space of time, notwithstanding the darkness of the times. This shows what self-sacrifice, blended with artless simplicity and candour, can do. No prospectus or report other than his

own plain straightforward statement of facts, supplemented by the testimony of the agent. Premium and promotion-money sacrificed for the good of the shareholders. Were this to become the rule instead of the exception of starting new companies, the pre-ent existing shyness on the part of speculators would soon be removed, and "the good old times" return again.

However, this is not the only instance. I have before me the prospectus of the Va'e of Conway Lead, situated in the same township as the foregoing mine, in which the promoters show the most magnanimous spirit, and I have been given to understand that the shares are being taken up readily. From what I have been told the mine is far more promising than the prospectus states it to be. Here again is a display of singular modesty and candour, which shall obtain its merited reward. The managing director is a gentleman of unimpeachable character, a thorough man of business, and one who understands how a mine should be worked. His co-directors are men of sound business habits, and will I am sure take to heart the interest of the shareholders. The promoters of both these companies, as well as one or two more which have appeared in your columns, have shown a bright example, worth the imitation of one and all.

I hope to be visiting the neighbourhood of these mines shortly, when any interested in them may have the full benefit of my going there.

JOHN ROBERTS, M.E.,

Mem. Min. Soc. Great Britain and Ireland.
Symde Dylluan Mine, North Wales, Sept. 27.

CORNISH MANGANIFEROUS ORES.

Sir,—We were very glad to see this matter taken up in the Journal of last week, for the future of Cornwall hangs, to a great extent, on the success of its iron ores and manganiferous ore mining. Four years ago the Corporation of Iron Miners commenced operations at Duchy Pera, in Coby parish, when iron ores, as well as the metal, were at high fabulous prices, and a ready market was obtainable for any class of ore. The works were quickly extended; an engine was erected for pumping, several winding-engines (of that semi-portable kind so suitable for exploratory operations) found work in hauling the debris from the shaft, which was sunk to the 60 ft. level, and in drawing a quantity of ore for stocking at surface. The shaft was sunk perpendicularly 60 fms., and the level proved by cross-cutting. At first and near the surface it consisted of fair quality hematite, but further down the level became a solid channel of spathose ore, 40 ft. wide, traversed here and there by veins of lead ore, more or less valuable for silver. The level was very porous, and abounded in cavities or vughs, and, consequently, dynamite was found to be the most economical explosive. Notwithstanding the large quantity of ore brought to the surface and sold or stocked, an infinitely greater amount remained opened out for stopping below. The spathose ore is pronounced by the best authorities, including Bessemer himself, to be admirably adapted for his process of steel-making, and when mixed with a due proportion of manganese is equal to the famous speigle ore. At Treasavean a very extensive mine has been opened out close to the railway, and at Gravel Hill a level over 100 ft. wide forms a bold headland fronting the thundering breakers of the Atlantic. So extensive are the works that the bare enumeration of what has been accomplished would take columns. Unfortunately, no sooner had the works got into swing than iron began to fall as rapidly as it had risen, and the Cornish Consolidated Corporation was caught by the ebb tide, and left on the rocks. The expenditure in explorations had been very great, and the capital became exhausted, and it was, therefore, impossible to force a market where Cornish ore was unknown, as the introduction of a new article is always regarded by manufacturers with extreme jealousy.

These iron mines were begun before their time, but we imagine only a very short time before. The age of iron is past, that of steel is just beginning. We have seen within the last few years a district rise out of nothing to rank as the first iron producer in the world, only to be again left in the rear by the march of progress. The future of Cornwall lies not in its copper and tin, but its steel. In the Cleveland district of Yorkshire the first manufacturers are leaving the manufacture of iron for steel, and are importing suitable ore from Spain. Let it at once be recognised that Cornish ore is not inferior to Spanish, and the supply will be drawn from the home district in preference to the foreign.

We have visited manganese mines in the central district of Cornwall, and from what was then apparent from limited working the production of manganiferous ore will keep pace with that of iron ore, and if the resources of the county are properly opened out labour will be found—occupation will be ensured for all the willing hands Cornwall will find.

It does seem a strange fact in the political economy of a great country like ours that the miners in Wales should be able to command wages double those paid less than 200 miles away. We are confident that this will not last long, because the iron industries now springing up in the county will create such a demand for labour as will raise wages to a more equitable level.

A CORNISHMAN.

Sept. 27.

CARDIGANSHIRE MINES FOR INVESTMENT.

Sir,—In my letter on the Revival of Mines in Cardiganshire, which you inserted in last week's Journal, I mentioned that in all probability one or two would shortly be brought before the public which would be worthy the attention of mining investors and capitalists. The following is one of them:—

PEN-Y-BWICH.—This property is situated about seven miles eastward from the Llanelonged Railway Station, and about six miles east from the Telybont village. It is one of the very best and longest one of the largest and most masterly, as well, I may safely say, the richest level ever worked in Cardiganshire. It has been produced from the 20 ft. level under adit (which at the deepest point is only about 2 fms.) considerably more than a million sterling in value of silver lead ore. The courses of ore throughout the vein make in solid ribs, varying from 3 in. to 4 ft. wide, the level being in places over 100 ft. in width. Many of these are dispersed throughout it, and when trial after trial have been made continually, and which have continued for more than a century, and each party have thought they exhausted the ore at the age and to the 20 ft. level, each new trial has proved it to be false—fresh or new courses of ore having been always found, of great richness, standing by the side of the former workings; and I have no hesitation in saying that when the level has been properly cross-cut throughout the grant, even at the present depths, as much more will remain for taking away again as has been taken away by the former workers. All that is wanted to make this the greatest, richest, and most durable of the mines in the county is to work the property systematically—this being the case, failure is impossible, and success is a certainty. I will, therefore, endeavour so far as lies in my power to place before you what, in my opinion, is a property that will be necessary to describe the position of the mine, which stands on a very high ground—I should say from 1000 to 1200 ft. above the sea-level—and on this high ground the machinery, consisting of a 24-in. horizontal steam-engine, &c., for working the pumping machinery, is fixed; but that the level passing through the grant goes through ground that rises rapidly from the western boundary towards the different points of workings eastward, so that by starting an adit level at this point (the boundary west), where a cross-cut of about 20 fms. would cut the level, the adit could be started and continued all the way to the extreme end of the workings on the course of the level, and would gain a back of from 300 to 600 ft. in driving a distance of about 400 fms., and this would unwater the deepest point of the old workings, and leave a back of more than 30 fms. of whole ground to be taken away over the adit level, calculating from the deepest point of working. The last company expended about £5000. In the sinking of Pen-y-Bwch shaft, which has reached a depth of 60 fms., and Gibbs' shaft has also been sunk to a depth of 30 fms. below adit—the latter being 150 fms. to the west of the former, and the late managers, in a report dated Feb. 21, say—"It now only remains to cross-cut and drive on the level to prove the vein, which, according to our opinion, a small sum will accomplish." I may say that there does not exist one single doubt in my mind that a mine of great importance and immensely profitable may be opened out between these two points, and this should be done whilst the adit is being driven towards it; as this work progresses there can be but little doubt very valuable discoveries will be made in different places, and where rich ore is found ventilating shafts should be put through to surface, both for this and for the economical working of the ground. An adit level has been started by the present proprietors, called Williams' adit, about 100 fms. west of Gibbs' shaft, on the course of the level, where there is some good lead ore at surface, and the ground very congenial and speedy for developing—and this will undoubtedly be one point for sinking from surface to the proposed adit. It will undoubtedly be found necessary to fix water machinery at the mouth of the deep adit, and to erect such machinery from time to time as circumstances require, until eventually, when the adit level has passed through the grant, the whole of the machinery for every purpose will stand in the valley, and to the west of the adit level—the advantage of which for a continuous working of the mine in winter and summer are immense. By hand-labour about 5 fms. driving per month could be driven by six good men, and I think with a good boring machine three times that quantity could be accomplished. Supposing the adit level to be driven under the first ore ground discovered at surface, and worked away to the westward of Williams' adit before a communication was effected from surface to adit, the distance to drive would be 400 fms., which, taking all expenses connected therewith, including agency and every other item, could be carried out at 10l. per fm., would cost 4000l.; and to sink a shaft to the depth of the adit under the workings alluded to would be 60 fms., which we will take at 15l. per fathom, or 900l. I consider the prices named are not only liberal but

much in excess of what the actual cost will be. For cross-cutting the level, and driving or opening 100 fms. on the course of it, before calculating on any more being made, we will put down the price at 15l. per fathom, which will be more than ample to cover every expense, and, as in the former instance, much more of what the actual cost will really be. To add to the present machinery now on the mine for all the requisite purposes we will say 1000l. more, which will make it all complete and amply effective for making very large returns until the level is deep adit in the valley below. We have, therefore, to raise for the proposed deep adit, 400 fathoms, at 10l. per fathom, 4000l.; for a surface shaft to the depth of 900l.; cross cutting and driving, 1500l.; and machinery, 1000l.; total, 7400l. This sum is expended and the work carried out as proposed there is a moral certainty of opening out a mine that will last for a century, and become the most profitable ever developed in Cardiganshire. There are excellent smiths and carpenters' shops, miners' barracks, and there are excellent buildings erected at great cost and in good condition on the mine.

The report reads long, but less could not be said about it to do justice to the mine. Royalty, one-sixteenth. ABSALOM FRANCIS.

Goginan, Oct. 4.

P.S.—In addition to the horizontal steam-engine the pitwork is placed to the bottom of Pen-y-Bwch and Gibbs' shaft; railway laid throughout the mine, with an excellent crushing-mill and dressing apparatus—in fact, all that is requisite to carry out the workings as proposed, as well as lead ore being raised on tribute over the mine.

THE VALUE OF SAFETY-FUSE.

Sir,—Allow me to correct an error as to the name of the party having resided near Goldsmithy, which last week appeared in a letter under this head, from Mr. Symons, of Truro. The person was named "Bundy," but "Powning," but, for the sake of brevity I presumed, went by the name of "Powning." I was present at the time the body was raised from the shaft, and was acquainted with the party.
Goginan, Oct. 4.

ABSALOM FRANCIS.

TRESAVEAN LODE.

Sir,—In last week's Journal I saw a letter from Mr. R. Symons of Truro, where he says—"The late Mr. Michael Williams, of Trevice, believed that the Tresavean lode ran under Trevice House, but no search was made for it, and I doubt not that a search would be useless." This brought me in remembrance of what I once saw there. When I was a lad, 45 years ago, I saw as fine a gossan lode running about east and west, a little to the south of Trevice House, as any man could wish to look at. I cannot say now how wide it is, or if the underlie is north or south, nor can I say for certain it is Tresavean lode. But this I know, there is a large lode there, and I can find it with very little trouble. It is likely that I am the only man now alive that has seen it. At that time there was a fine well of water to the south of it, which I believe to be rising from the same lode, and if the proprietor of Trevice wishes to see the lode I will show it to him when I go to Cornwall.

SIMON TAY.

Aberdunant Mine, Llanidloes, Oct. 4.

IMMEDIATE INVESTMENT.

Sir,—Permit me to call your attention to the present indications of a revival in the trade of both metals and minerals. It cannot be kept in view too steadily, and as I perceive you have done in several of your leading articles, that the metal trade after all has suffered less than any branch of our commerce, except in one metal—iron—which has fallen off in an unprecedented manner both in value and quantities, accounting for the largest portion in the decline of our total exports.

Our exports of minerals have been, on the whole, good. Rarely has the export of salt, particularly to Ireland, and by rail to Scotland, been so good, and the export of "chemicals" prepared from mineral substances has been well sustained, and the demand for Cornish china-clay has actually increased. One mineral will engage attention more than others, its value is so much greater, the capital embarked in its production is so vast, and it employs so great a number of the population. I, of course, refer to coal. After the "coal famine," as the late season of high prices and inadequate production was called, the value of our exports of this mineral declined, as did also quantities, but in nothing like the same proportion, but there has been a rally, and the exports are now advancing. Few investments can be more satisfactory than good collieries at the present time. The demand is certain, the property is at our doors, and its extent and worth is always ascertainable *ad idem*. One cannot in a single letter designate all the good opportunities thus available, but one is eminently eligible just now—that of the Chapel House Company. It is situated in the richest, most populous, and most enterprising county in England—Lancashire—containing Manchester, the great manufacturing capital of England, and Liverpool, which may claim to be the commercial capital, for although London has the largest number of ships Liverpool has the heaviest tonnage. Liverpool can take all the coal raised from the two pits, for its export to Ireland, especially Dublin, would be a vast trade in itself, if it had no other. Accordingly the company has important premises in Liverpool and a wharf in Dublin. The demand is greater than the output, so that the company is obliged to purchase from others, so as to keep their connection together until it is able to raise sufficient from its own magnificent field, although the present raisings are very great indeed. The plant of the company is very complete, consisting of railway sidings, 218 railway wagons, 26 lighters, and three schooners to give facility for its extensive shipping trade. The management is remarkably economical, the coal is wound up from the pits and tipped over into the wagons, the shoots being so arranged that the coal is screened as it falls, the large coal falling into one wagon as the small coal and slack is discharged into another.

The property is described as having nine ascertained seams with an aggregate thickness of 33 ft., all thoroughly workable, and of excellent quality. It is, perhaps, necessary to inform investors who are not familiar with coal raising, nor with our coal commerce, that the decline in the value of the mineral at the pit's mouth has not corresponded with that in London and the large provincial towns. Coal "rings" managed to effect monopolies and raised the price of the coal until purchases consequently becoming limited, as every one economised consumption, the "rings" like the Jammy, the Erie, and the gold "ring" at New York. The alteration at the pit's mouth was in few instances great, so that the article at the collieries brings remunerative prices now. It is not yet so long ago since the operations of one of these "rings" on the Exchange "balled" up the coal market in London to a monstrous and mischievous degree, but in the coal districts the cost of the fuel was not at all commensurate. I have no doubt that Chapel House Colliery debentures offer a safe, stable, and suitable investment.

Lead mines are also at present very inviting to capitalists. In one of your leaders lately the sentence occurred, "Lead is the metal of the future." If this is so there are fair hopes for our copper, and better still for British tin; but whatever impediments there may be to better markets in those metals, there are none similar in the way of lead. An ordinary lead mine can be worked with a comparatively small capital, and the demand has no limit at present in prospect of being attained. As fast as it is brought to surface the market is ready to receive it. Prices do not fluctuate as with other productions of our mines, but there is a quiet, steady, and almost uniform advance. Circumstances are now very propitious to lead mining, especially for investment in well prosecuted progressive mines. Great prizes have been won in lead mining. Tankerville began with a capital of 72,000l., and sells for 125,000l., and has already divided 55,200l. in dividends. Roman Gravel has called up 90,000l., sells for 160,000l., and has divided 74,700l.; the last dividend was 8s. 6d., and the closing price 13½ to 13¾ per share.

In Montgomeryshire there is Dyflife. The company has been re-constituted, with a capital of 60,000l. It sells from 15 to 20 per cent. premium. One dividend of 2s. 6d. per share has been declared. The capital of the Van Mine was 63,750l. It pays dividends to the extent of 48,000l., and has already divided 274,125l. West Wye Valley has called up 36,000l., has declared dividends of 1800l., and the selling price is 20 per cent. above the capital. East Van has called up 90,000l., and sells at double that sum. Wye Valley—different from West Wye Valley—called up 30,000l., and the shares are at 100 per cent. prem. East Darren, in Cardiganshire, has paid 70,000l. in dividends, and only 9750l. called up. Grogwin, in the same county, 8000l. in dividends, and 40,000l. called up. Lisburna

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have only called up 75000*l.*, and distributed dividends to the extent of nearly a quarter of a million. West Chiverton, in Cornwall, has paid in dividends 163,500*l.* Foxdale, Isle of Man, has distributed 230,300*l.* on a capital of 70,000*l.*, and Great Laxey from the profits of a capital of 60,000*l.* has paid more than 300,000*l.* Cargill paid back 734 per cent. on the amount subscribed. The North Cornwall Lead Mining Company offers a fine opportunity for investment. The shares are changing hands this moment at par value, and one of the highest and most reliable authorities in England deprecates the depreciation in the price of tin, satisfactory evidence is expressed his conviction that the mine is a valuable one. Notwithstanding the depreciation in the price of tin, satisfactory investments may still be made. New St. Agnes, the offices of which are at 70 and 71, Ethelburga House, Bishopsgate-street Within. It will afford me pleasure to be the instrument of introducing intelligent investors to any of the properties named, and to others also excellent media for the profitable and legitimate employment of capital.—Royal Exchange Buildings, City, London, Oct. 5.

GEORGE BUDGE.

PEMBROKESHIRE MINERALS.

Sir,—The county of Pembroke, the most western of South Wales, contains 37 miles long, with a mean breadth of 28 miles, and contains 988,000 acres; it is bounded on the north-east and east by Carmarthen and Carmarthenshire, the other sides being surrounded by the sea. It is a rich agricultural county, but is also productive in minerals. A great many good slate quarries being at work at the present time, as an instance of which I might refer to an excellent quarry near St. David's—the St. Bride's Slate and Slab Quarry—which was started a few months ago, and appears to be turning out very successfully; there are already good prospects for slates, and there is no doubt it will pay the present company well if it be properly developed. There are also excellent slates at St. David's Head, which would be well worth the while of a company to take up and work. At about two miles more to the south, opposite Ramsey Head, there is an excellent copper mining property and brick ground, worth thousands of pounds. The copper is visible, and has been proved to be of the best quality, both for the percentage of metal contained and for the facility for smelting; it requires very little fuel, and there is an excellent site upon the property itself for the erection of smelting-works, which would be conveniently situated for shipping and general commercial purposes. I think the local smelting appears to be coming right across the St. George's Channel from Cornwall. All that is wanted to facilitate the rapid development of the district is a railway down to this ancient city. St. David's, Oct. 3.

THOMAS EVANS, Engineer.

NEW CONSOLS.

Sir,—In the Journal of Sept. 30 I notice a letter from your old correspondent, Mr. Symons, of Truro, in which he refers to an interview he had with the manager, Capt. Pryor, respecting the postponement of the monthly pay-day for want of funds to pay the men. Capt. Pryor is then asked the following questions by his interrogator, Mr. Symons:—"You have had to call up a great deal of money to carry out your works in New Consols to their present extent? Did you ever put off a pay-day?" He replied—"Not at all." I am not aware whether Mr. Symons is an official of New Consols or no, but I am quite sure that Capt. Pryor does not wish to be protected at the expense of those who have had the misfortune to put off a pay-day. It is very seldom that such an occurrence happens in this county under the Cost-book System, but I believe that 12 months since such an event did happen at Cape Cornwall. Some other mine in the western part of the county, which was, I think, under the management of Capt. Pryor. I should like to know whether this mine was conducted on the Cost-book System, or whether it was a limited affair? I presume the latter.

FAIR PLAY.

PROFITS FROM MINING.

Sir,—I notice that not unfrequently people write in public journals that which they know but little, and sometimes on matters of which they know nothing at all. In last week's Journal I observe a letter from the secretary of the Nascent Process, in which he alludes to the great profits realised by metallic smelters, and as a proof of which instances the vast fortune amassed by the late Mr. Charles Lambert. I believe no one will attempt to deny that immense profits have been realised by the smelters, metallic smelting being a business into which few have the means to enter—hence the monopoly. Will you, then, kindly permit me, through the medium of the Journal, to inform your correspondent that, great as may have been Mr. Lambert's gains during the comparatively short time that he was a copper smelter, he was not indebted solely to that business for his great wealth. In the year 1840, when I was about to leave for India, Mr. Lambert asked me to accompany him to look at his copper mine, the purchase of which for \$12,000 he had just then concluded. Having carefully examined it, I said—"Well, Mr. Lambert, your mine, as you are aware, is in sight very far, but notwithstanding, it is my opinion and confident belief, amounting almost to a certainty, that here you have a vast fortune at stake." Mr. Lambert, in addition to a high salary, offered to give me a share or part of the mine if I would remain to manage it. It was this mine which made Mr. Lambert, and not copper smelting, for he was a rich man even before he returned to this country and became a copper smelter, the wealth which he obtained from the mine—mine which had been worked and left by the ancients time out of mind—giving him the means to embark in this heavy business. Milldam square, Islington.

JOHN LEAN.

WEST TANKERVILLE MINE.

Sir,—As supplementary to my letter in last week's Journal concerning this flourishing young mine, will you kindly allow me to say a few words? My predictions that the quantity of ore produced per month would increase and that the shares would soon rise have nearly both come to pass, as Capt. Waters is this month increasing the quantity from 30 to 35 tons, and next month to 40 tons, and the ordinary shares have risen in price since I wrote my last. The returns of ore—1280 fms.—at only 1 ton per fathom will last 23 years at 40 tons per month, and taking the value at 14*l.* 10*s.* per ton, gives a yearly sale of ore of nearly 7000*l.* in value; deduct from this amount the working cost of the (last) year—4800*l.*; it leaves a balance of 2200*l.*, sufficient to pay the interest on the 15 per cent. preference shares and to leave a balance of 850*l.*, equal to 2½ per cent. on the ordinary share capital. Besides this, the mine will be opening out, and at any day may strike a very valuable lode. It must be carefully observed, too, that I take the lowest amount of ore per fathom. If I take the highest, and allow the "backs" of ore to be worked out in 2½ years, it will, of course, pay the preference dividend and give 12*l.* 10*s.* per annum to the ordinary shareholders as dividend, equal to 50 per cent., after all owing for increased cost in the dressing of the ore. The returns of ore in the latter case would be increased to 160 tons per month, or about equal to Tankerville. I am looking at the other extreme. The medium will give 25 per cent. per annum dividend.

A SUBSCRIBER.

THE PAR MINING DISTRICT.

Sir,—I regret to see, in the Royal Cornwall Gazette for Sept. 23, an announcement respecting the New Pembroke Mine. I am fully persuaded no district in the county can compete for speculations in a virgin ground with this. I can call the attention of mining speculators to the large tracts of mineral lands belonging to Sir Colman Rashleigh, Bart., M.P., Sir Charles B. Graves Sawle, Bart., Mr. Nicholas Kendall, and other gentlemen. No capital is need to go to Australia to speculate in mining. In the lands of the former gentleman there are as good speculations as that or any other colony will produce. Sir Colman can show lodes 11 ft. wide, producing 33 lbs. of black tin to the ton of stuff, and at another portion of the manor lodes about 3 fms. wide, well defined, running into the mountain, with 80 fms. of perpendicular backs, yielding nearly 30 lbs. of tin to the ton of stuff; copper lodes 4 ft. wide, yielding native copper, malachite, red and black oxide, yellow copper, gossan, &c. On two of the lodes two adit levels, 12 fms. apart, are driven. At this point

can be seen in a cutting of the Cornwall Minerals Railway twelve lodes well defined within a distance of 40 fathoms. From one of the lodes so id slabs of tin, weighing 75 lbs., have been taken out, and are visible to the naked eye. There are many more lodes in his land not mentioned, nearly all alive for tin and copper, whilst simple water is obtainable for working machinery and for dressing the ores.

In this district are many shallow progressive mines at a standard, not for want of prospects or poverty of mineral, but for want of funds to carry them out. A small amount of capital would put them to work, and I doubt not but that many of them would prove as great prizes as the once celebrated Fowey Consols, Par Consols, and other mines. On the same lodes as Fowey Consols and other mines were worked on, in the land of the before-mentioned gentlemen, good dividend-paying mines can be opened up as were those of 40 or 50 years ago, and the lodes are liberal in the royalty, and give every encouragement to mining. There are also good prospects in Sir Charles Sawle's, Mr. Kendall's, and other landowners' estates as in Sir Colman Rashleigh's land. What is mentioned is visible.

Mining speculating gentlemen come and see, or send your agents—you need not go to Australia or any other place for tin and copper, but come to St. Blazey.—St. Blazey, Oct. 2.

P. RICH.

LONGITUDINAL EXTENT OF LODES.

Sir,—Your well-known correspondent, Mr. R. Symons, of Truro, has given your readers the benefit of his long and varied experience of the continuation in length of the lodes of this county, in which he says that "Mr. W. J. Henwood was a very laborious investigator of mineral phenomena for a series of years," and that he said "no copper, tin, or lead lode in Cornwall or Devon could be traced for more than two miles." In Devon Great Consols Mr. Symons admits that that lode has been traced for more than two miles since the publication of Mr. Henwood's book. He further states—"But in Cornwall no lode that I can just now think of has been opened upon so much as two miles, unless the lodes from Carn Brei to Stray Park have been opened so far." Here Mr. Symons leaves this important matter in doubt; and with a view of clearing it up I will give one in tance which I think is perfectly free from doubt, and may be taken as a fair illustration of many other champion lodes of this county—Ting Tang main lode, on which the adit level has been driven the entire length of this lode into the adjoining one, Wheal Amelia and Pannace Consols. The same lode is traced the entire length of Wheal Beauchamp into Copper Hill, East Basset, Wheal Barbet, South Frances, and West Frances, a distance of about four miles, without giving one who knows the district the slightest cause to doubt. But even this is not all the truth in connection with this great lode, although the following may not be so decidedly proved as the above, yet there are fair grounds, and in some instances unmistakable evidence, that this great lode eastward passes through Wheal Moyle, the northern part of Wheal Squire, all through Poldry and United Mines into Wheal Clifford and Wheal Andew, a distance of two miles more, altogether about six miles, and in this latter district, as well as the former, one of the most productive copper lodes ever discovered. I need not go further east than Wheal Andrew, yet I have no doubt the same lode may be traced through Nanites and other mines still further east, making a total length of about eight miles. Having surveyed as an agent and worked on this lode as a tributary through nearly all the mines mentioned, will, I trust, be taken as evidence in establishing the fact that the longitudinal extent of the principal lodes of Devon and Cornwall has not yet been ascertained.

Carharrack, Oct. 3.

GWENNAP MINER.

STREAM TIN.

Sir,—When theories are once received into our creed we are too prone to adhere to them, and to endeavour to support them, without taking the trouble to ascertain, if possible, by investigation their truth. Many theories long held as true, investigation has supplanted. We have been taking it for granted—I fear without much consideration—that all stream tin was washed off from the backs of lodes, carried down the valleys, and there deposited where the current of the stream is not rapid. The late Mr. J. Carne, of Penzance, was of this opinion, and the opinion—probably derived from him—has been very commonly held in the mining districts. There are, however, some facts which seem to militate against that theory. One is that you never, I believe, find any lode that gives evidence of any exposure to the action of water. Backs of lodes in general are several feet below the surface of the ground, and the superincumbent earth appears never to have been acted on by water. It is compact, and apparently undisturbed by any action whatever. Another reason is that tin of the character of stream tin has been found so near the tops of hills that it could not have been washed off from lodes, and where, in fact, no lodes could be found. When the late Mr. J. Carne was told of this he had no answer to give—it collided with his theory. One other very strong argument against the theory is that in a district in Australia which has yielded the best returns of stream tin in that country the land is so elevated as to make it impossible that the tin could have been brought there in the manner supposed by the theorists, and, moreover, there is no lode in the district. The minutest search after lodes has been made by one of the most practical of Cornish miners, and he alleges that no lode is there, and that the tin could not, therefore, have been deposited in the manner generally believed. Where, then, could the tin have come from? I will not undertake to answer that question. I leave others to answer it. I put this subject before your readers that it may be ventilated by men more clever than your humble servant, the writer. From all that I hear I infer that the Australian sources are being fast exhausted, and if it should so prove—if exhaustion does come—the price of tin will certainly advance, unless the miners should find fresh sources of supply somewhere else. Hundreds of our best miners having been compelled to leave their native Cornwall are exploring other countries, and we cannot blame them; they wish to live, of course. I have not Mr. Henwood's book nor Mr. De la Beche's at hand to consult them on the subject of stream tin, as it is called.—Truro, Oct. 4.

R. SYMONS.

AN EXTRAORDINARY MINE.

Sir,—In last week's Journal you kindly inserted my letter respecting the extent of lodes. When I wrote that letter I was not aware that in Devon Great Consols the Wheal Maria lode (i.e. the main lode) had been opened on for three miles in length. There is a "road," so to speak, at the adit level for that distance. The eastern adit begins at the Lumbwin river, and the opening of the other end is about 40 fathoms from the River Tamar, but it is not altogether of the same level, because the Lumbwin river, where the adit is taken up, is about 100 feet higher than the Tamar at the other end of the works. They had, therefore, to rise to meet the adit from Maria. There is no mine in Cornwall or Devon where a lode has been proved for such a length. It is the whole length of the sett, so that Devon Great Consols may well be called an extraordinary mine. The lode in Maria part of the mines is, I believe, the widest part of it, but it is very wide generally throughout. In one place, however, it narrowed to 6 inches! The lode was not rich for all that distance, there are poor places in it, as in lodes in all good mines.

There are some other extraordinary circumstances connected with that celebrated mine:—1. It yielded more profit than any copper mine in England; nearly 1½ million sterling! 2. The local director who was appointed about 30 years ago is still in office—I mean Mr. Morris, whose residence is near Tavistock. 3. The same manager has held office from the commencement, about the year 1844, till now—Capt. James Richards, a highly respectable man, and of the class A 1 amongst mine managers for intelligence and practical ability. Capt. William Teague, Capt. Josiah Thomas, Capt. Richard Pryor, Mr. Richard Boynes, &c., belong to that class. 4. This mine has more machinery and mine buildings than any other mine known to me. It is said that at New Consols the masonry is more than equal to all the erections in the town of Callington—which I do not dispute, but I may say that at Devon Great Consols the buildings are still more extensive. I have learned that owing to the failure of the great lode the company have been called on twice for money to carry on the works and to erect the buildings, &c., required for

preparing the arsenic and for refining it. Of this commodity a large return is made, and a much larger return is possible, but I suppose they limit their production to the demand. The sett is the largest in the West of England, but there are larger setts in Cumberland. I went over one there containing 10,000 acres, the property of one gentleman.

In passing through Devon Great Consols yesterday my attention was called to the product then being drawn up from the new south lode. I was struck with the large size of the blocks of copper ore, and the quality of it. It is probable that that lode will restore the mine to the Dividend List. It has been cut at sundry points for a great length. A new shaft is being sunk on it (just commenced) at Wheal Emma to prove its quality there. The gossan is such as miners regard as a good indication of riches beneath. "Success to Devon Great Consols."—Truro, Oct. 4.

R. SYMONS.

MINING IN ST. JUST.

Sir,—On Friday last I was at St. Just—a parish which a few years ago was so famous as the site of mining industry, when employment for miners and artificers was abundant, and when there was "no complaining in the streets." Now, out of the 20 or 30 mines only five are working—Botalack, Wheal Owles, Levant, North Levant, and Spearne Moor—the last named of which is likely to cease ere long. I will name some of those which the low price of tin has caused to be stopped—Boscawell Downs, East Boscawell, Boscawen, St. Just Amalgamated, Spearne, part of Wheal Owles, Cape Cornwall, Boswidden, and Balleawidden. Those are the principal, but there are numerous other mines of less note which have stopped. The number of persons employed by those mines was very large; most of the men dismissed have left the parish, leaving numerous houses empty. The rate collector informed me that there are 300 unoccupied houses in the parish. When I mentioned that circumstance to a miner in Botalack village he said—"There will be 600 unoccupied soon." Of course, so many removals seriously affect trade, and great complaints are expressed by shopkeepers, &c., on account of the "badness of the times." Capt. R. Pryor told me yesterday that St. Just Amalgamated would not pay the cost of working with tin under 60*l.* per ton. Levant and North Levant are good mines, Botalack is about self-supporting, and so is Wheal Owles.

The part of Wheal Owles now being worked is called Wheal Edward, where the lode is being worked under the sea, as in Botalack and Levant Mines, and where, I am happy to say, there is a good copper lode. I saw a specimen of the ore at the account-house—the character and quality resemble the best which has been raised from Botalack and Levant. I hope that this copper lode will turn out productive, and give the company regular dividends. No one not educated at the mine could make it pay its way under the present depression. Mr. B. Byns has been at the mine nearly all his life-time, so that he knows how to do everything for the best. The tin stocked some year or two ago is still withheld from the market, waiting a better price, which is expected by many. You may remember that Mr. Byns, by stocking the tin a few years ago, gained about 5000*l.*; and if the present stock were sold off at the present price the company would not be losers by stocking. On the whole, the company have abundant reason to be satisfied with the management. If the Australian tin should fail—as many persons predict it will—we shall see a revival of activity in St. Just again. A "knacked" mine presents a sad spectacle. But St. Just is not singular—Breae, Germoe, Perranuthnoe, Crowan, Gwinnar, St. Hilary, St. Eth, Lelant, Gwennap, and Wendron are in a similar predicament, if not worse.—Oct. 4.

R. SYMONS.

WHEAL GRENVILLE, AND ITS MANAGEMENT.

Sir,—Your energetic correspondent, "F. L. A. T. Rodda," will not confine himself to the matters in question, but again, in last week's Journal, gives a lengthy letter, chiefly assumptions, remarking primarily, "I still adhere to my figures," but he gives none, as if he were to do so they would certainly criminate him as a perverter of facts. The question is, has the position of the shareholders and the mine improved by the change of management? I gave you figures proving the benefit of the alteration in the Journal of Sept. 23, of the result of the first seven months' working and returns under new management, and compared same with a corresponding seven months of last year under old management. "F. L. A. T. Rodda" challenges their correctness. I repeat the figures are correct as extracted from the balance-sheets presented to the shareholders at the general meetings held March 25, July 8, and October 6, 1875, signed E. and O. E. John Watson, secretary. The management at the time being in the hands of—

John Watson, secretary, salary, per month	£13 10 0
John Hosking, managing agent	8 0 0
William Bennett, captain	9 0 0
Charles Bennett, captain	3 13 6
Samuel Stephens, purser	9 0 0

Mr. John Watson being secretary, and the others engaged at one or all of the following mines—East Wheal Grenville, New Rosemary, and Treldigh Wool; the two former are now winding up, and the secretaryship of the latter removed. I therefore challenge either one or all of the parties above named to contradict the following: I say it is true that during the seven months, from Feb. 28 to Aug. 14, 1875, the monthly loss was ... £435 6 3
The average price obtained for No. 1 proceeds of tin per ton ... 53 6 3
That the quoted prices of refined tin ranged from 68*l.* per ton in February to 92*l.* per ton in September, 1875.
That the costs during the seven months amounted to ... £7419 2 5
The returns ... £231 18 7
Being 196 days' costs against 196 days' returns.
I also say that under present management, as follows—
T. B. Lewis, secretary, salary per month ... £6 6 0
Thomas Hodge, managing agent ... 12 12 0
Joseph Hosking, captain ... 8 0 0
Francis Hodge, clerk ... 5 5 0
And an unpaid committee of management: none of the above agents being engaged at other mines. The monthly loss has been ... £266 4 1
The average price per ton obtained for tin, being all No. 1 parcel ... 41 15 9
That the quoted prices of refined tin from February to August, 1875, ranged from 82*l.* to 78*l.* per ton.
That the costs from Feb. 26 to Aug. 12, 1875, amounted to ... £6119 6 2
The returns ... £255 17 5
Taking 196 days' costs against 196 days' returns.

I further say that if refined tin had maintained the price in 1875 as in 1875, the sales would have realised 114*l.* 4*s.* 3*d.* more, thus leaving a loss of only 150*l.* 6*s.* 4*d.* per month. Let the public judge whether the change in management was needed or not.

"F. L. A. T. Rodda" says the machinery never had level the old management. Read the following report to general meeting June 26, 1872:—"We should have made more progress in the past quarter had we not been hindered through accident by our machinery." The returns during the quarter, signed by "John Watson," secretary, were 41 tons 0 cwt. 0 lbs., an average of about 13½ tons per month, yet only in one single quarter since did the old managers exceed this quantity. And here is a startling fact, at that time the aggregate value of the ends and stopes in the mine was 183*l.* per fathom; the number of men on work, 46; besides 60 men on tribute, at 1*s.* 11*d.*, the price for which they were selling their No. 1 parcel of tin, 95*l.* and 97*l.* per ton, refined tin being then quoted at 150*l.* per ton. I go further and find that the account-issues I am signed by John Watson, secretary, for general meeting in December, 1873, the quantity of tin sold for the quarter was only 32 tons 0 cwt. 2 qrs. 1 lb.; No. 1 parcel realising 77*l.* per ton, the quoted price of refined tin being 124*l.* per ton, yet with this small return the stopes and ends were valued in the aggregate at the high figure of 183*l.* per fathom, while 49 men were employed on work, and 60 men on tribute, at an average of 12*s.* 1*d.* in 1*l.*, and the mine working at a loss. The present managers have always sold a larger quantity in a similar time, the number of men employed less, and the stopes and ends of a considerable less reported value. In fact, the aggregate value of the ends and stopes at the present time is only 121*l.* 10*s.* per fathom, on which 95 men are employed on work and 27 men on tribute, at an average of 12*s.* 4*d.* in 1*l.*; still the returns are greatly in excess of past management, the sale on Wednesday last for four weeks being 14 tons 15 cwt. 0 qrs. 3 lbs., at 44*l.* per ton, the largest sale ever made from the mine for four weeks' working.

"F. L. A. T. Rodda" says the prospects do not warrant the outlay of another shilling in machinery. As to this I must leave the agents to form an opinion and the shareholders to decide; taking, however, into consideration the fact that with the present price of tin the monthly loss is but small, and the returns are and will be increased by every improvement in the mine causing a reduced loss, and should I trade with improved prices for tin—being now lower than ever known—take place, the prospects of the future are far, in my opinion, in favour of the mine. Besides which the plant is being augmented and improved by a monthly outlay, which is producing beneficial results, therefore the mine stands a far better chance to be worth 9*l.* per share than when recommended at this price in times past. In making this remark I do not justify the conduct of those who made the recommendation, however correct they may have considered themselves in doing so. "F. L. A. T. Rodda" wants a motive, and a foolishly received compensation for my trouble. The shareholders, I have no doubt, would only be too happy in giving double the amount awarded in that instance to the indefatigable party who produced the change for similar results. But allow me to tell "F. L. A. T. Rodda" that during the time I was in business I did not put all my means in one basket, nor my money in Turkish bonds. He will understand what I mean by this. I have, therefore, no need for any recompense for my services, neither would I accept a remuneration for doing what I deem right in protection of my property, and those interested with me. I will here repeat

that influences are at work, and "F. L. A. T. Rodda" may be interested in endeavouring to purchase shares at low figures, and scruple not to make damaging insinuations to attain that object, but shareholders must look after themselves against such advisers.—*Thames-street, Oct. 5.* F. G. LAXE.

WHEAL GRENVILLE, AND ITS MANAGEMENT.

SIR,—Though Mr. Lane says I am wilfully untruthful in my remarks upon the management of this mine, to show you that I do not stand alone in my strictures, I give you some remarks extracted from the Western Daily Mercury of Oct. 2:—Wheal Grenville nominally 10s. to 15s., but the dealings in these shares are few and far between, although the secretary is reported to have put the mine in a sound financial position, yet the many breaches and hindrances to the pumping machinery, and an increased quantity of water, has naturally deterred speculators from operating on the market value of these shares.

It will also be seen by referring to the agent's report that ground being stopped that cannot pay its cost at the present price of tin. This system of stopping poor ground for the sake of showing how many tons can be returned in a month is a vicious one, and ought not to be encouraged by a too sanguine proprietary. On June 28 I wrote you that "it would appear as if the committee's sole object is to make expenditure and receipts balance at any risk, if only for the purpose of showing the shareholders that they have done what the old managers could not accomplish." The remarks of the Western Daily Mercury fully confirm the views I then expressed. As that paper truly observes, the mine has been put in a sound financial position, but it has been done by heavy calls upon the shareholders, not from profits, and the market value of the mine, so far from being enhanced by the soundness of its financial position, is actually 13,000l. less than when the mine was encumbered with debt; therefore, *cui bono?* The result of the secretary's financial arrangements is simply this—Mr. Lane tells us that when he assumed the management he found himself the possessor of a legacy of nearly 5000l. due to merchants; this debt was no secret. I have referred to the balance-sheets issued by the former management, and find that the amount due to the merchants was regularly charged in the liabilities of the mine, therefore the debt was well known to the shareholders. Even with this debt existing upon it the mine under the old management stood at a market value of 15,000l. To wipe off the debt the present management have made calls to the amount of 8500l. upon the shareholders, and the market value of the mine is reduced to about 2000l. "Breathes there a man with soul so dead," who after this will not say, "better the old management and a heavy debt, than the present management with no debt, but a next to valueless property."

And if this is the result of a brief ten months of Mr. Lane's rule, what may the shareholders expect in the next twelve months under the same superintendence? It wants but very little judgment to foresee the issue. As a shareholder addressed to the shareholders on Oct. 29 Mr. Lane told them that he had received many expressions of approval from non-shareholders residing in and out of the county, who were willing to join in the event of an alteration in the management. I should like to ask Mr. Lane how many shares have been purchased by parties in this county since he assumed the management. Since my last letter I have heard that the large number of shares I alluded to as having been sold at 2s. 6d. each were bought by what Mr. Lane would term an "important official" of the mine. What would Mr. Lane have said of any of the former officials under similar circumstances? Judging from what he said of the late secretary he would have addressed the shareholders thus:—"Gentlemen, since these shares were purchased we are told there is a great improvement in the bottom of the 130 ft. level, that the lode in the 180 is also improved, that the next tin sale will be more than the last, and that the sales will increase for the future. Now, gentlemen, I wish to call your special attention to this fact, that all these improvements take place immediately after our assisted official has purchased these shares. What does this all tend to prove? It tends to prove, gentlemen, the inference gentlemen, but that our aid servant is using his influence to make a market for these shares, so as to obtain a large profit upon his transaction, and when he has effected his object we shall very likely hear no more of improved lodes and increased sales of tin. This is how things are carried on, gentlemen, under the present management, and it is another abuse that I complain of. Our official may deny the correctness of my inferences, and if he does he is untruthful, and asserts that which he knows to be false." Now, Mr. Editor, I do not think the officials of Wheal Grenville or of any other mine, would be guilty of such reprehensible conduct, and I merely give you what I have written as a sample of the style which I think Mr. Lane would have used towards the officials of the former management. F. L. A. T. RODDA.

Cambridge, Oct. 4.

WHEAL GRENVILLE.

SIR,—As a shareholder in this mine and a subscriber to the Journal, I have read the whole of the correspondence emanating from your correspondent "F. L. A. T. Rodda" with reference to the past and present management of this mine, and I must confess that I perceive more spleen and ill feeling in his letters than intelligence by which the adventurers are likely to benefit. It appears to me that his sole desire is to damage the property by making believe that the present executive are incompetent to manage the company's affairs; whether this is so or not the shareholders are best able to judge. All I can say is that the quarterly accounts are furnished to us in as clear and concise a manner as one need wish, and having exercised my privilege as a shareholder to see the books of the mine under the old and present management, I have no hesitation in saying that every facility has been offered and every information afforded me that the secretary could give. I find that the committee meetings are regularly held, and a most rigid examination of the costs and merchants' bills is made before the payment is allowed. My only objection with reference to the present management is that the agent of the mine and his son, the clerk, should have the whole of the affairs in their hands at the mine—that is to say, the setting of all bargains, the engaging of all surface labour, the ordering of all material, and the payment of the men's monthly earnings. Should there not be a purser appointed to superintend the pay and to make up the books of the mine?

With reference to the statements made by "F. L. A. T. Rodda" (why does he persist in writing anonymously?) I think Mr. Lane's figures pretty well show that had the price of tin maintained its value the monthly loss would have been no greater than under the late management, and that further than having to pay the heavy debt handed over to the present committee that the calls on the shareholders would have been no more than a fair compensation for the services of the secretary. That he is a large holder the share list will prove, but whether he intends to fill some 12 or 14 pages in a large ledger with his transactions in shares remains to be seen. From all I can learn he is but a trustee, and the shares are purchased as an investment through his recommendation. If the latter is the case it shows his confidence in the future of the mine, and I assume from his long experience of mines and miners he knows what he is about. I hope, Mr. Editor, we have heard the last of Mr. Rodda, and his rate should be glad to see at the foot of this letter that you decline to publish any further correspondence in respect to Wheal Grenville. One thing I will venture to say, that you will have the best thanks of nine-tenths of the shareholders, as well as mine.—*Oct. 6.*

P.S.—I have made no reference to the working of the mine, as I am hardly competent to offer any opinion thereon, but one thing appears to me favourable, and that is that we have nearly 17 tons of tin for this month, and expect to have nearly, if not quite, as much next time.

[For remainder of Original Correspondence, see to-day's Journal.]

GOLD MINING IN VICTORIA.—The Melbourne Argus states that the returns from the quartz mines of Sandhurst, which is now the premier gold field of the Colony of Victoria, keep quite up to their average. At Stawell, which is the second quartz reefing town, 65 tons of stone, got at the great depth of 106 ft., crushed on July 26, yielded 517 ozs. of gold, or nearly 8 ozs. to the ton, which is regarded as a magnificent return. The Magdala Company, at Stawell, were at last near completing the crushing of all surface labour, the Newington and Pleasant Creek Companies, at Stawell, have reached a depth of 158 ft., the deepest in Victoria, but have not yet found the reef they are seeking for. The mining accidents of the year 1875, chiefly from falls of earth, caused 83 deaths, averaging in alluvial mining one death among every 678 miners engaged, and in quartz mining one to every 351 men engaged; or, stated differently, the deaths thus caused were 1.52 per 1000 of alluvial miners employed, and 2.84 per 1000 of the quartz miners. This is a high ratio.

MOONATA.—A trial shaft sunk near to the powder magazine is on a lode of a very promising character, the ore being grey and yellow coated black. The lode on the sand-hill, understood to be a new one, is also of a very promising character. **KURILLA.**—At the 45 ft. level of the engine-shaft there is a considerable improvement in the quality of the lode, which was resumed. At the 35 ft. level a bunch of ore, by the side of the lode, has been cut. It runs north, contains 7 ft. wide of solid ore, and is actually worth 20 tons per fathom. So important a find has not been made recently on the Peninsula. During the past month 160 tons of ore have been sent to England, 100 tons of which would average over 20 per cent. The yield for June and July would thus be over 280 tons, and it would average over 14 or 17 per cent. This leaves a fair margin for profit. The reserves of ore found are more than equal to the capital subscribed, and when this and the yield are taken into consideration, the prospects of the mine may well be painted in good colours.—*The Western Times, Aug. 9.*

DEVON CROSSLANDS.—Respecting the new discovery at this mine, the captain writes under date August 5 that it is looking very well. During the week 5 tons of ore, one have been raised from it, the depth then reached being 3 fms. 1 ft. The lode is well defined, from 2 ft. to 2 ft. 6 in. wide, between good walls. In the eastern end there is a good lode standing 13 ft. high. The nature of the ore from this lode is green carbonate and grey ore, mixed with fine gossan and spar. The other parts of the mine are looking well. The lode in the engine-shaft is yielding 12 tons of good yellow ore per fathom. There are from 50 to 60 tons of ore on the floor for the past fortnight's work. *See also the Argus of 24th October.* **TIER WALLS.**—We understand that active operations are being carried on in the eastern sections of this mine, and that a new shaft is being sunk at Stirling's. The arrangements for pumping the water by the Matta engine are nearly completed, so there is a prospect of active work being done in this portion of the mine. A very long level at the 42 has been holed through, thus connecting the two mines. Excavations, we observe, are being made near Eider's engine, and it is understood that a new engine will be erected there to work some expensive dressing machinery. The new steam-whirl is nearly ready for work. The prospect is, we should imagine, very favourable, as at the deepest point in Hughes' shaft, 153 fathoms down, it has been ascertained that the ore ground is continued under the slide.—*South Australia Register of August 10.*

HOLLOWAYS' OINTMENT AND PILLS—RHEUMATIC AND NERVOUS PAINS.—The chilly mornings and evenings will provoke these tortures in constitutions susceptible to these maladies. Nothing affords so much relief as Holloway's ointment well rubbed up in the skin after repeated warm fomentations. Thousands of testimonials bear witness to the wonderful comfort obtained from this safe and simple treatment, which can be adopted. Holloway's Ointment, assisted by the judicious use of his pills, is especially serviceable in assuaging the sufferings from cramps and other muscular pains. The united efforts of these incomparable remedies not only release the sufferer from intolerable torments, but expel for the time being the latent and unknown causes of gout and rheumatism.

Meetings of Public Companies.

SIERRA BUTTES GOLD MINING COMPANY.

The thirteenth ordinary general meeting of shareholders was held on Thursday, at the Cannon-street Hotel.

Mr. LEWIS R. PRICE, the chairman, presiding.

Mr. JOHN SAUL (the secretary) read the notice calling the meeting. The directors' report was taken as read.

The CHAIRMAN said the accounts now submitted varied very little from the previous accounts, and needed but small comment upon his part, but there was one innovation which had been introduced, and that was the appropriation of a certain sum to form a reserve fund. That this was contemplated from the formation of the company was proved by Article 147 of the Articles of Association, which stated—"The directors may also, before recommending or declaring any dividend or bonus, cause to be reserved out of the net profits of the company, and be carried to such separate account as they may direct in the accounts of the company, any sum which they may think proper or desirable for equalising dividends to be paid at yearly or other periods, repairing or maintaining buildings or other works, or covering losses by depreciation or diminution in value of the company's property, or for meeting any future or unforeseen expenditure or contingencies of risk, liability, or loss, to which the company or its assets may be subject or liable, but any such reserve fund, or the interest thereof, and all the accumulation made therefrom, shall at any time be applicable to any purpose to which either the capital or revenue for the time being of the company, or any part thereof, may at the time be applicable." Under those circumstances the directors had thought it proper to pass 5000l. to form the nucleus of a reserve fund. This might also be called a renewal fund. The property of the company aboveground, such as mills and other buildings, necessarily deteriorated both by lapse of time and by use. The principal part of the buildings was constructed of timber, which of course very rapidly deteriorated, and, therefore, they might look forward to the expenses increasing annually for the repairs. As long as the mills were new very little expenditure was required upon them, except to meet occasional expenses, but as they got older there would be more need to provide for the repairs. Another probable source of expenditure was, as they were aware, the mine was on the side of a hill, and consisted principally of poor ore, and the profit which was made was principally due to economy in manipulation, and, therefore, as the mills in the upper part got older, and had to be renewed, it might be better to abandon the upper mills altogether, and erect a new mill lower down at the mouth of the 7th level, which they were now driving. It also might have the effect in creating a good reserve fund, that should any accident cause them to suspend work in any of the mills they would lose not only the profit of the mill for that month, but also have the expense of rebuilding it, and, therefore, there would be a double expense, and they would have to provide for a portion of this, and if any surplus remained it might enable the directors to equalise the dividends during times of necessary suspension and renewal. The result of the operations of the half-year was a profit of 14,060l., against 10,629l. in the previous half year. This was a matter which, considering the mine was reported to be in the same condition, and under the same class of ore, he could not help thinking was satisfactory. The number of tons mined was 25,927, showing an excess of 799 tons over the previous half-year; the average yield of gold was 85.875 cents per ton, or about 9d. per ton over the previous six months, which, on 25,000 tons, would give 1050l. As regards the mine and its prospects, it might be well to say a few words. The shareholders had before them the agents' reports, and the directors had since received a letter from Capt. Johns, dated Sept. 1, reporting on the various works. He would call attention to the more prominent points. Mr. Johns reported that the mine was looking fully as well as at the time of his previous visit. It was shown by the accounts that they could earn 14,000l. odd, and therefore it seemed that with the abundance of poorer ore which they had at command they ought to earn a dividend, even if no improvement should take place. He would refer to one or two points mentioned by the agents. They stated that in the third level of the Ariel ledge, "at a point 5 ft. east of the head of the Willoughby raise, the upper Texas Rise was put through to the surface, a height of 210 ft., all but 40 ft. of which went through good pay ore, fully above the average, and the ledge will probably run from 5 to 7 ft. in the thickness, and, perhaps, more, as it has not all been exposed yet. At the foot of this raise, and on the eastern side of it, stopping has recently been commenced, and the ore has proved of excellent quality to be for mining and milling." Again, further on, the agents stated—"Just above the third level, and on both sides of the Willoughby raise, a large block of ground has been stopped out during the present term. The ledge has run from 4½ to 9 ft. in thickness, but rather under the average grade, though it carries some rich streaks. Going east the stopes are getting smaller and poorer, but going west they hold their own well as to size, while the quality is improving." On the west side of the Willoughby raise some stopping had been done, running from 8 ft. to 14 ft. With regard to the 6th level the agent says—"The stopes about 100 ft. west of Willoughby's raise have been steadily worked since the date of our last report, and the footwall has been exposed to a depth of about 8 ft. of the ledge is being extracted and pays a fair profit." But there was another point in regard to the 6th level to which he would call attention. The agent stated "that around Tinney's raise more or less stopping has been done as usual; it is from here that the richest ore in the mine is got, but as the ledge is very small no more of it is broken down than is absolutely required to return a fair average. This is what is known as the rich blue rock, and consists of a streak only about 12 inches wide against the footwall, which in places runs very rich. As far as we know there is but little of it in the mine, other wise you would soon find a substantial improvement in the monthly return." Further, he had read that they would see that there were points in the mine which promised better for the future; but he would also say with respect to the 7th level, which was begun 18 months or two years ago, and commenced about 250 ft. below the 6th level, according to Mr. Johns' report of Aug. 28 they had driven 1211 ft., and had still 190 ft. to penetrate before reaching the point below Tinney's raise, where the richest ore was found, but there were traces of fine gold, but nothing extremely rich. Mr. Johns, in his letter, added—"I consider the prospects for getting good ore in the 7th level have improved, but I do not think we should be glad to hear that the 7th level is the next 250 or 300 ft. of mining." Here he might mention that the directors had received the usual telegram containing the latest news up to the eve of the meeting. It was as follows:—"Sierra Buttes Mine looking as usual; clean up amounted to 832,000l.; struck big ledge in 7th level, but the grade is as yet low." Therefore, the telegram was so far satisfactory, because what they anticipated they would find had actually been found—namely, that there was a large lode, and, doubtless when they got further in and penetrated to Tinney's raise they might find some of the rich ore which was there.

Mr. C. SCROOBY, in that telegram from Mr. Johns?—The CHAIRMAN: No; it was from Messrs. Cross and Co., who had sent it in order that the shareholders might as usual be put in possession of the latest news from the mine. He mentioned at the last meeting that negotiations were going on to secure the service of Mr. Johns at the two mines—the Sierra Buttes and the Eureka; but they might easily imagine that a change involving so many difficulties could not be accomplished in a moment, but on the 17th of July Mr. Johns assumed the management of both mines. This was desired both by the directors and also by a great many of the shareholders, and he was sure the meeting would be glad to hear that the management had been carried out—(cheers)—and he would express a hope that good sense and a sincere desire in the interests of the company to promote its prosperity would enable the different authorities on the other side to pull together and ensure harmonious working for this plan. He would now turn to the position of the shareholders in consequence of the admission of the deferred shares to a participation in the profits of the company. It was stated in the report that the deferred shares were not entitled to any participation in the profits until the sum of 160,000l. had been paid in dividends to the original shareholders of the old Sierra Buttes Mine. If they would turn to page 18 of the report they would see the details of the sum paid in dividends in April last, the amount of 155,944l. 6s. had been distributed in dividends upon the ordinary shares up to that time, and a further sum of 4,627l. 10s. was required to complete the 160,000l., after the payment of which the distinction between deferred shares and ordinary shares would cease, and all shares would become entitled upon equal terms to participate in the dividends. He had stated the profits were 14,060l., and in dealing with this question of dividend the directors had deemed the proper course to be to give the usual dividend of 2s. per share on ordinary shares, and a proper portion of the profit. It had been suggested that a dividend of 2s. per share should be paid on the deferred shares, which would now cause a deferred share to be paid on the deferred shares, they must pay before the deferred shares got anything, and, therefore, they must pay 40s. 4d. and then, if a dividend of 2s. per share was declared on the old shares, the new ones must have it also, and that would involve the outlay of 12,000l. odd, making altogether 15,200l. odd, and that could be paid out of 14,060l. it was difficult to see. There seemed to be an idea that when money was in hand it should be divided; they must first consider how much of that was their own, and next how much of that was theirs, and then they could afford to pay it. They had gone through in the first half of the year a great deal of work, and all the money in hand, 3,000l. or 4,000l. did not belong at all to the present half-year, and all the remainder, after payment of the proposed dividend, was required to pay the current working expenses. The reserve for the latter purpose had been fully approved at every meeting, and markedly so at the last meeting. The board, acting under a sense of responsibility, would be wanting in their duty if they did not resist any undue strain upon the finances of the company. (Hear, hear.) He would mention some of the causes of possible expenditure. The water as coming on the stocks now only represented 2500l., and they were deluged with it in the winter, and it was necessary to make some timely provision in that the mines might not be stopped. They would remember that there was a short stoppage at the Eureka, by which they lost some time, and that was a very serious thing. 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1876



The board have steadfastly pursued the policy of supplying to Captain Johns, without stint and without delay, every item of machinery and stores which he has

EXTRAORDINARY BLASTING OPERATION.—The Americans are proverbially proud, not to say boastful, of gigantic enterprises, and they may now take to themselves credit for having carried to a successful issue the most enormous blasting experiment on record—the explosion of Hell Gate, or, as it was originally named by the Dutch, Horlt Gatt, meaning whirlpool. The object of this undertaking may be briefly described. The City of New York stands on the island of Manhattan, which divides the East River from the mighty Hudson—there calls the North River, and ocean going steamers have hitherto approached it by way of Staten Island and the Narrows. Another approach is by way of Long Island Sound and the East River. The Sound is about 100 miles long and 20 miles across at its broadest part, but at its western extremity it narrows so that in places it is not more than half a mile wide. This passage has only been navigable for vessels of light draught, in consequence of a reef running between East River and Long Island Sound, and which by the triple sounding machine of Hell Gate. Seven years ago it was determined to pierce this rock and blow it up to the top of the mountain in a manner in which this work has been carried out may be described as a triumph of engineering skill and daring, for during its later stages it was attended with more than an ordinary amount of risk. First of all a shaft was sunk on the river bank, from whence radiated 21 headings, and these again were intersected by galleries running in curves concentric with the main shaft. The total length of the galleries and headings was nearly a mile and a half. Into the supporting piers and into the rock itself were inserted, in great numbers, of which, preparatory to the grand assault, was recently inserted an iron tube containing a quantity of the high explosive was separately connected with the electric batteries, so that they might be dis-

SOUTH ROSKEAR.—We are glad to learn that a skip road is now being fired in Vendave's shaft, and every preparation made to sink the mine in earnest. This shaft is sunk to the 140, and in about 25 fathoms below that point the main lode and several converging branches meet, in connection with the great elvan course. The best mining authorities anticipate great results from this junction, and under the law of the district is at fault, a large course of copper ore is certain to be found there. The tin and arsenic ores from this mine have been steadily increasing for

BLAKE'S PATENT STEAM PUMP.

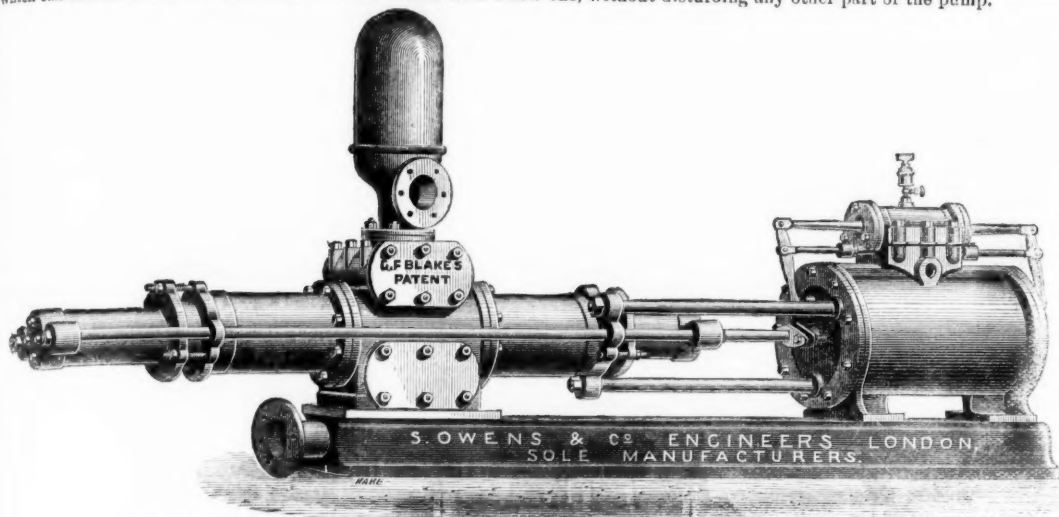
MORE THAN 8000 IN USE.

SOLE MAKERS FOR GREAT BRITAIN.

S. OWENS & CO.,

Hydraulic and General Engineers, Whitefriars-street, London;
And at 195, Buchanan-street, Glasgow (W. HUME, AGENT).

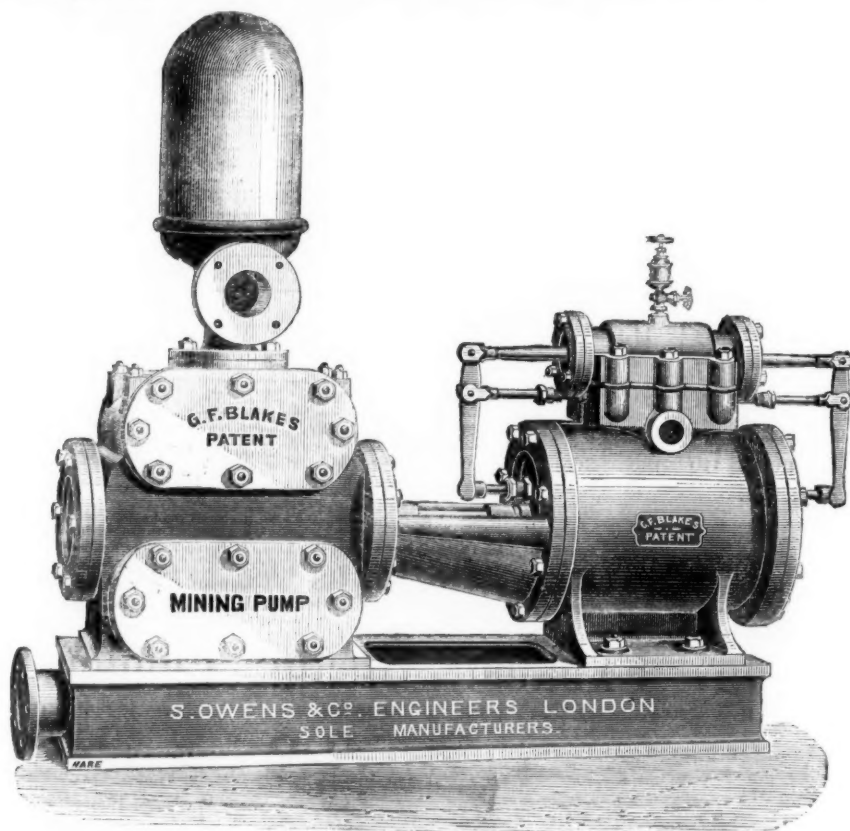
These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is desired to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily got at by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



Blake's Improved Double-plunger Steam Pump.

S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, Whitefriars-street, Fleet-street, London.



Blake's Improved Mining Pump, with Patent Removeable Lining to Pump Cylinder.

Any combination of these Pumps may be had to suit circumstances. The following are some of the sizes SUITABLE FOR MINING PURPOSES:—

	12	12	12	12	14	14	14	14	16	16	16	16	18	18	18	20	20	20	24	24
Di. of steam cylinders. In.	3	4	5	6	4	5	6	4	5	6	8	4	5	6	8	5	7	8	9	6
Di. of water cylinders. In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	42
Length of stroke. In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	42
No. of strokes per minute.	30	30	30	30	25	25	25	22	22	22	22	22	22	22	22	20	17	17	17	15
Quantity in gallons per hour, approximately ...	1440	2610	4200	5940	2940	4620	6600	2646	4158	5940	10620	2646	5160	7500	13260	4586	9000	12360	15660	6720

PRICES FOR THE ABOVE, OR ANY SPECIAL SIZE, AND ILLUSTRATED CATALOGUES FURNISHED ON APPLICATION

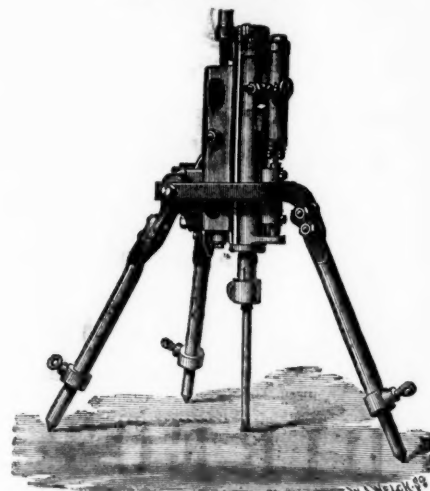
PATENT CONDENSORS

Can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficiency

The Blake Pump will work under water, and as efficiently with compressed air as with steam.

BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

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For the amount of work it will do, it is the lightest, most compact, most durable, and cheapest in the market.

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BEST KNOWN MATERIAL.

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Also of SPUR, MORTICE, MITRE, BEVIL, and other WHEELS, of any diameter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unobtainable by any other means.

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SECONDHAND MINING MACHINERY, in good condition, always on sale at moderate prices.

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Has been paid as

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The original papers contained in the volume include Phosphorite Mining, by Joseph Garland; The Diamond Rock Borer, by Major Beaumont; On a Deposit of Tin at Park of Mines, by C. Le Neve Foster, B.A., D.Sc., &c.; On the Pawton Iron Mine, by J. H. Collins, F.G.S.; On Mechanical Appliances for the Drainage of Mines, by Stephen Holman; Surface Drainage of Mining Districts, by C. Butlin; On the Elvan Courses of Cornwall, by W. H. Argall; Note on a Cross-Section from Cook's Kitchen Mine to Wheal Henrietta, by John Maynard; and Note on Three Sections of Lead Districts in Cornwall, showing the Productive and Unproductive Rocks, by T. Clark.

In addition to these there are the reports of District Meetings, Excursions, Officers, Prizemen, &c., forming a complete record of the progress of the Association.

London: MINING JOURNAL Office, 26, Fleet-street, London, E.C.

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VIENNA EXHIBITION, 1873.



LONDON EXHIBITION, 1874.



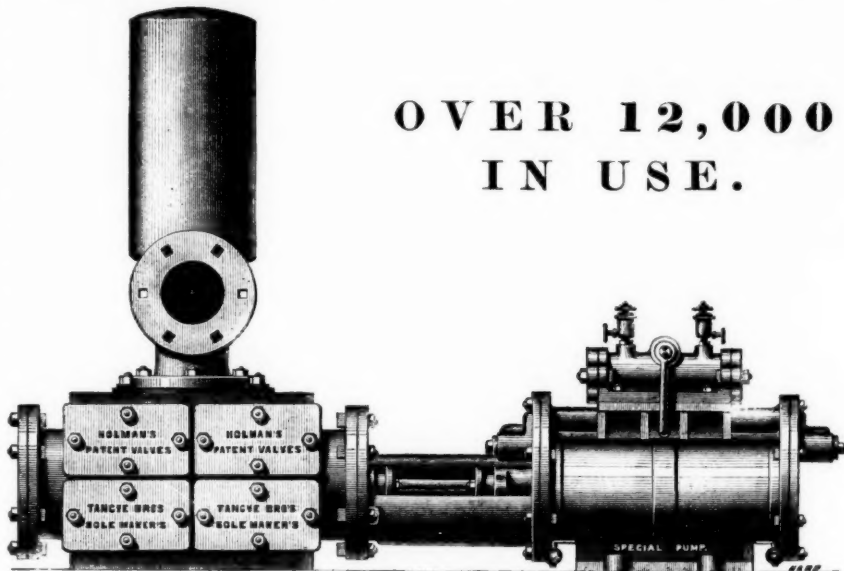
CORNWALL POLYTECHNIC SOCIETY, 1867 and 1873.

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“THE SPECIAL” DIRECT-ACTING STEAM PUMP.

After eight years of successful application for all purposes to which steam-driven pumps can be applied, THE “SPECIAL” STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once the simplest and most certain in action. There is absolutely no extraneous gear, and the steam cylinder is no longer than the pump. The valves are of easy access, and are suited for pumping fluids and semi-fluids of almost any consistency.



OVER 12,000
IN USE.

WILLIAM ELLIOT, Esq., of the Weardale Iron and Coal Company, writes under date Sept. 17th, 1875, as follows:—“We have now THIRTY-FIVE of your SPECIAL STEAM PUMPS in operation at the various collieries under my charge—some of them employed pumping water out of our pits to the depth of 50 fms.—others employed in the pits, and a good many feeding Boilers. I have no hesitation in saying that we have found them the Cheapest and Best Pumps of the kind we have tried. I can with confidence recommend them to intending purchasers.

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GREAT REDUCTION IN PRICES.

The following sizes are suitable for low and medium lifts:—

Diameter of Steam Cylinder...In.	3	4	4	4	5	5	5	6	6	6	6	7	7	7	7	7	8	8	8	8	8	9	9	9	9	9	10	10
Diameter of Water Cylinder...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	7	4	5	6	7	8	5	6	7	8	9	5	6
Length of Stroke.....In.	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	12	12
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,519	5070	7330
Price	£16	18	20	25	22	10	27	10	32	10	25	30	35	40	30	35	40	45	50	40	45	50	55	65	50	55	60	70

CONTINUED.

Diameter of Steam Cylinder..In.	10	10	10	10	12	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	16	18	18	18	18	18
Diameter of Water Cylinder..In.	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14	10	12
Length of Stroke.....In.	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000	20,000	30,000
Price	£55	75	90	100	75	80	85	110	120	140	110	120	130	140	160	180	140	150	160	180	200	180	190	210	230	210	230

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the “Special” Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of suction and delivery valves of a “Special” Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

The “Special” Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36 48 and 72-inch Strokes.

Holman's Patent Self-acting Exhaust Steam Condensers,

FOR ALL KINDS OF STEAM PUMPS AND HIGH-PRESSURE STEAM ENGINES.

Turns waste steam into
GREAT POWER.

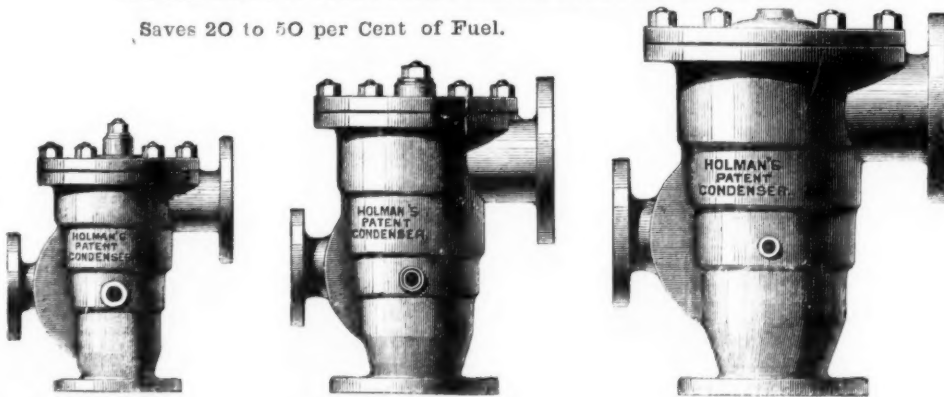
REQUIRES NO THREE-WAY COCKS,
CHECK, or REGULATING VALVES.

SAVES HALF ITS COST IN PIPES AND
CONNECTIONS.

PREVENTS ALL ESCAPE OF STEAM IN
MINES OR ELSEWHERE.

REQUIRES NO EXTRA SPACE.

Saves 20 to 50 per Cent of Fuel.



These Condensers are made to suit any kind and kind of Steam Pump. They form a part of the suction pipe of the Pump, and while they effectually condense the exhaust steam, they produce an average vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Engine, and effecting a saving in fuel of from 20 to 50 per cent.

In Mining operations these Condensers will be of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the feed water, but is returned with it into the boiler.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:—

MORLEY COLLIERY, WIGAN, October 16th, 1874.
Messrs. TANGYE BROTHERS AND HOLMAN.
GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economy of use, a most valuable feature in the drainage of underground work.

Indga. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the “Special” Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10½ lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge

indicating a steam pressure of 36 lbs. per square inch, 80 yards from the Pump and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. The economy thus shown is really so great that the cost of the Condenser must be saved in a very short time.
(Signed) J. THOMPSON.

Price from 30s. to 40s. per inch diameter of Steam Cylinder, according to the relative Diameter of Pump for which Condenser is required.

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SOUTH WALES HOUSE... TANGYE BROTHERS AND STEEL, Tredegar Place, NEWPORT, Mon.; and Oxford Buildings, SWANSEA.

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LATE THE MOLD FOUNDRY CO. (ESTABLISHED 1833).

SOLE MAKERS IN GREAT BRITAIN.

HUNDREDS IN USE.

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Will supply Designs, and all the necessary Plant for laying out
Dressing Floors; also

MANUFACTURERS OF EVERY VARIETY OF

MINING MACHINERY,

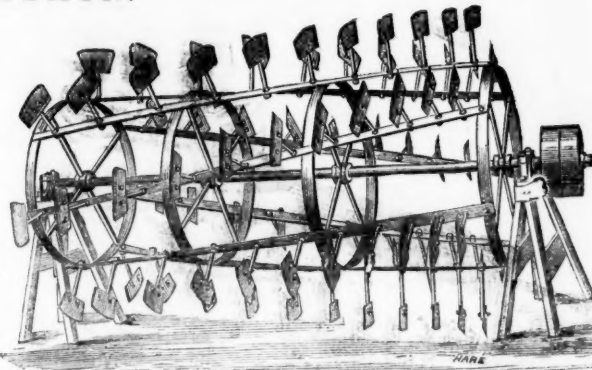
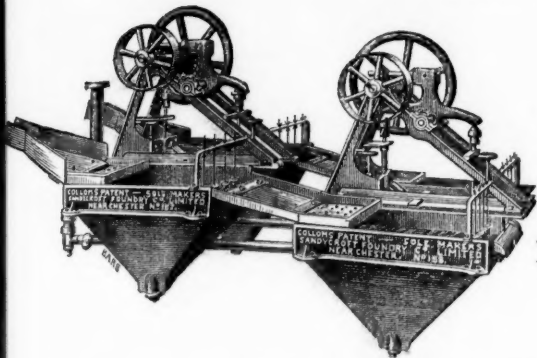
PUMPING & WINDING ENGINES,

PITWORK, CRUSHING MILLS,

ROLLS

OF PECULIARLY HARD AND TOUGH MIXTURE

&c., &c.



COLLON'S PATENT AUTOMATIC ORE WASHING MACHINE, working at the following and many other Lead, Copper, Blende, and Tin Mines:—Great L. key, Cape Copper, Pontgibaud, Linares, Alamos, West Tolgus, Lisburne, Minera Halvans, Snailbeach, &c.; and also at Messrs. Vivian and Sons' Works, Swansea.

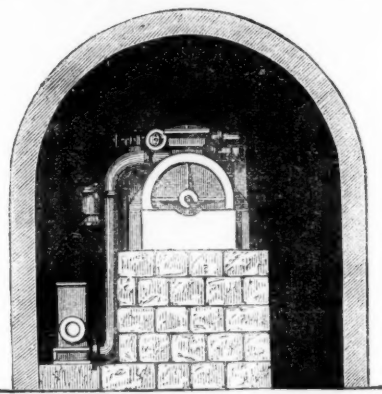
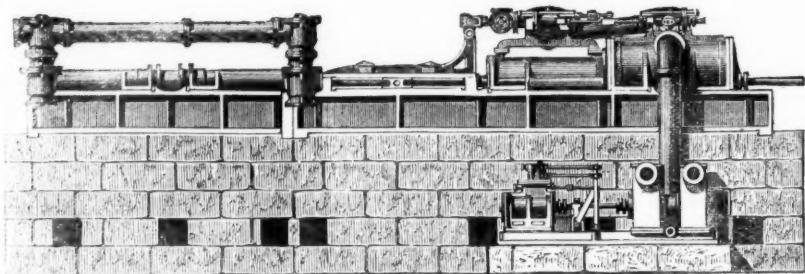
PATENT IMPELLER, OR KNIFE BUDDLE, in use at the following and many other Lead, Copper, Blende, and Tin Mines:—The Van, Roman Gravels, Tankerville, Ladywell, Lisburne, East Black Craig, Old Treburgett, Penhale & Barton, Bog, Linares, Fortuna, Alamillos, Minera Halvans, &c.

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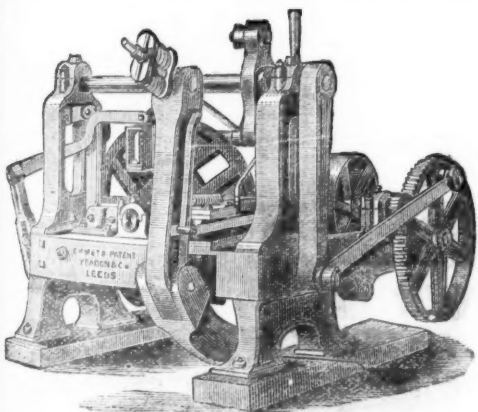


THE COMPOUND DIFFERENTIAL ENGINE AND FORCE PUMPS,

With Separate Condenser, as applied Underground, forcing 700 gallons per minute 920 feet high.

SUN FOUNDRY, LEEDS.

FURTHER PARTICULARS ON APPLICATION



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Massive; durable; cheap; takes little power, and gives PERFECT SATISFACTION.

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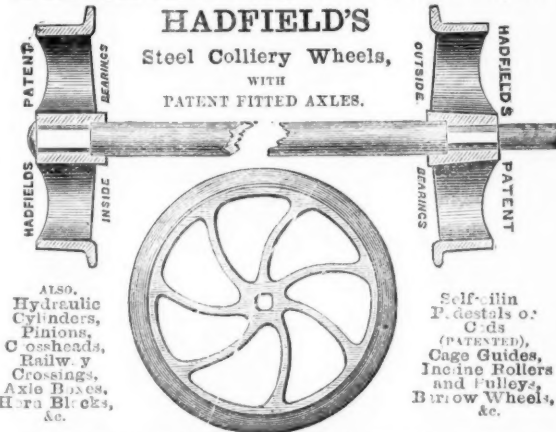
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of which upwards of 8684 have been made to March, 1875.

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MAKERS OF LARGE PUMPS AND PUMPING ENGINES.

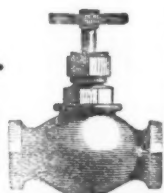
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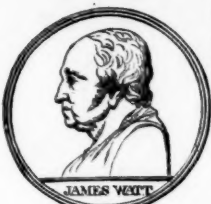
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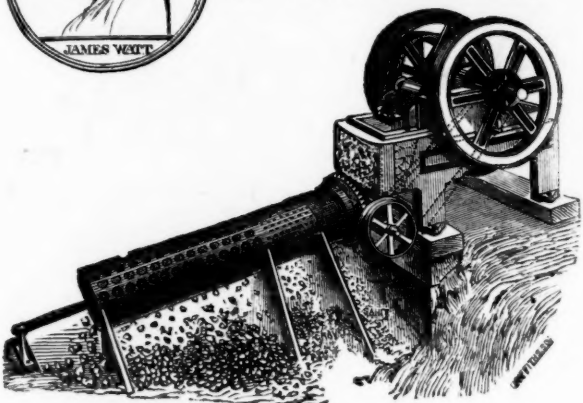
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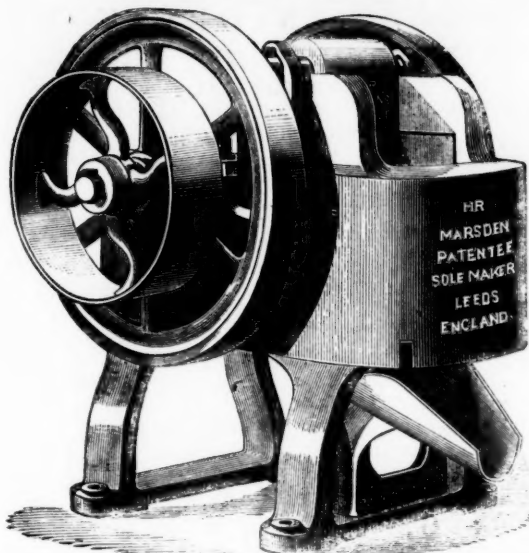


Ore Crushers, H. R. M.'s
New Patent Crushing Jaw
EXTENSIVELY USED
BY MINE OWNERS.



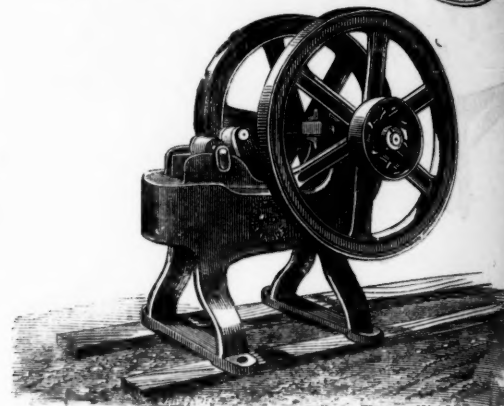
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AT ALL THE PRINCIPAL WORKS IN THE KINGDOM.
Takes in 20 in. by 9 in. and is shown by TESTIMONIALS to be
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THREE HALF-PENCE PER TON.
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SMALL WEAR AND TEAR.
FREEDOM FROM BREAKAGE.

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ENGINEER.



Revolving Picking
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1150 NOW IN USE.



MACHINE FOR HAND OR STEAM POWER.

For making gravel for gentlemen's walks in parks and gardens, also
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SIMPLICITY OF CONSTRUCTION. EXCELLENCE OF SAMPLE.
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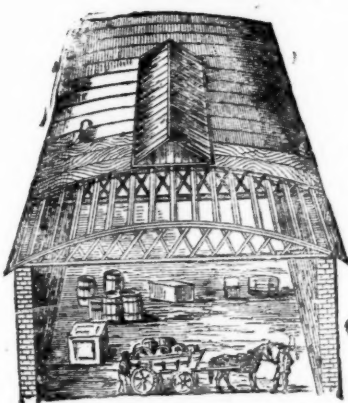
"The Machine is well designed, simple, but substantially made
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of which are double bow and string girders of best pine timber, sheathed with 1/2 in.
boards, supported on the girders by purlins running longitudinally, the whole
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both in the cost of roof and uprights.
They can be made with or without top-lights, ventilators, &c. Felt roofs of any
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Manufacturers of PATENT FELTED SHEATHING, for covering ships' bot-
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DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby
saving 25 per cent. in fuel by preventing the radiation of heat.
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Wholesale buyers and exporters allowed liberal discounts.
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By a special method of preparation, this leather is made solid, perfectly close
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It may be had of all dealers in leather, and of—

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Reduced prices of this Rock Drill (formerly called "Kainotomon"), Nos. 1 and 2, £32 and £34.
SUBJECT TO DISCOUNT.

IMPROVED AIR COMPRESSORS.

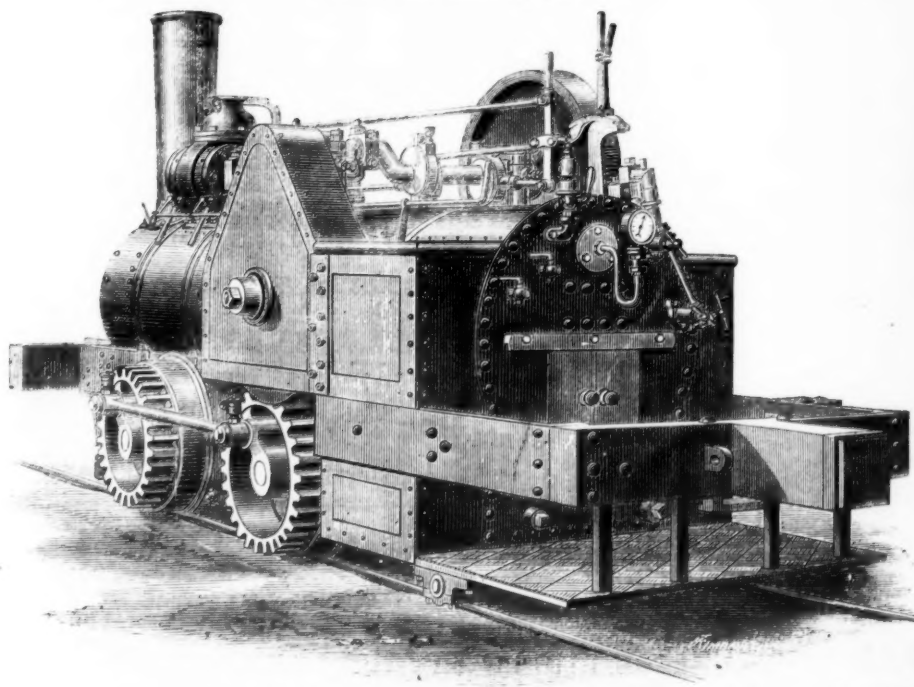
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